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(54) DETERGENT COMPOSITION FOR METALLIC PRODUCT

(57)Abstract:
PURPOSE: To provide an aqueous detergent for metallic products having high rust-preventing properties, properties with respect to waste water treatment (biological treatment) and detergency (degreasing properties).
CONSTITUTION: This composition consists of (a) 13wt.% of tall oil fatty acid amine soap, (b) 7wt.% of polyethylene glycol p-isooctylphenyl ether, (c) 6wt.% of dipropylene glycol monomethyl ether, (d) 6wt.% of ethylenediaminetetraacetic acid, (e) 9wt.% of dibasic fatty acid amine soap, and (f) the balance water. The aqueous detergent is obtained by diluting this composition as the stock solution so as to provide a solution having 1 to 8wt.% concn. of the stock solution.

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* NOTICES *

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DETAILED DESCRIPTION

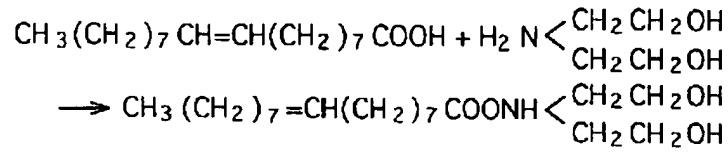
[Detailed Description of the Invention]
[0001]
[Industrial Application] this invention relates to a cleaning agent constituent. A chlorofluocarbon system and a chlorine-based cleaning agent can be substituted for the cleaning agent using this cleaning agent constituent, and it can be suitably used as industrial use cleaning agents, such as metal goods.
[0002]
[Description of the Prior Art] the former and a member -- chlorofluocarbon system cleaning agents, such as trichlorofluoroethane, and chlorine-based cleaning agents, such as 1.1.1. trichloroethane, have been widely used as an industrial use cleaning agent from which the dirt which makes a subject the organic substance, such as fats and oils adhering to the front face, machine oil, cutting oil, and grease, is removed These cleaning agents have high properties, such as washing nature (degreasing nature), incombustibility, and a drying property, and fit especially washing of a bit and piece etc.
[0003] However, a chlorofluocarbon system and a chlorine-based cleaning agent pose a big problem by environmental pollution, toxicity, etc., and future use is becoming a difficult situation. Then, a semi-drainage system cleaning agent, and the alkali builder and surfactant which mixed and obtained a surfactant and water as an alternative of a chlorofluocarbon system and a chlorine-based cleaning agent including a hydrocarbon system cleaning agent, and a hydrocarbon system solvent and water soluble solvents, such as kerosine, as a principal component are blended, and the drainage system cleaning agent which added and obtained the little solvent if needed is examined variously, and is used. However, these cleaning agents are also holding each trouble, as shown below.
[0004] That is, since a hydrocarbon system cleaning agent corresponds to an inflammable combustible while having toxicity, it is accompanied by risk in handling work. Moreover, since a semi- drainage system solvent also has the possibility of ignition by evaporation of moisture and water is added with risk in handling work, there is a problem also in a corrosion behavior and waste-water-treatment nature. On the other hand, a drainage system cleaning agent has danger and very low toxicity, and it is the high cleaning agent of the safety which does not have influence in environmental pollution, either. On the other hand, compared with a solvent system and a semi- drainage system cleaning agent, properties, such as washing nature (degreasing nature) and a drying property, are inferior, and a corrosion behavior and waste-water-treatment nature pose a problem like a semi- drainage system solvent.
[0005] The thing containing a polyalkylene glycol monochrome phenyl-ether system solvent, an acetylene glycol or/and its alkylene oxide addition product, a glycol-ether system solvent, and water is ******(ed) as a drainage system cleaning agent by JP,5-51599,A. By using together the comparatively small polyalkylene glycol monochrome phenyl-ether system solvent of solubility to the water which added 1-2 mols of alkylene oxide to the phenol, and the glycol-ether system solvent which dissolves in water completely, and adding water further, this thing has a high detergency (degreasing power), and let it be a cleaning agent that recovery for waste oil is easy, and safe. Moreover, combination of the nonionic active agent of an acetylene glycol system considers as the cleaning agent of very low foamability.

[0006]
[Problem(s) to be Solved by the Invention] However, consideration of as opposed to a corrosion behavior in the conventional drainage system cleaning agent indicated by above-mentioned JP,5-51599,A is not made. For this reason, when washing metal goods using this drainage system cleaning agent, by survival and un-drying, rust is generated in metal goods and it becomes a problem. [of moisture]
[0007] Moreover, in the cleaning agent of a drainage system, it becomes an important technical problem to purify waste water for especially waste underwater pollutants effectively separation and by removing, or changing the property and turning harmless, i.e., to raise waste-water-treatment nature. Oxidative degradation of the organic substance as non-shelf-life matter is aerobically carried out by the underwater microorganism with consumption of underwater dissolved oxygen among pollutants. Thereby, waste underwater pollutants concentration falls and waste water purification progresses. For this reason, easily, if the biological-treatment nature of the organic substance which exists in a treated water is high, since this organic substance is disassembled and removed, it can purify waste water effectively. Therefore, in the cleaning agent of a drainage system, in order to raise waste-water-treatment nature, it becomes important to use the high organic component of biological-treatment nature for a cleaning agent constituent.
[0008] In order to raise a detergency and the emulsification force in the cleaning agent of the conventional drainage system here, generally the synthetic fatty acid of a petroleum system is used. For such a petroleum system composition fatty acid, the above-mentioned biological-treatment nature is a low. For this reason, it was difficult to purify the waste water effectively in the conventional drainage system cleaning agent. this invention is made in view of the above-mentioned actual condition, and rust prevention nature and waste-water-treatment nature (biological-treatment nature) are high, and let it be the technical technical problem which should be solved to offer the cleaning agent constituent for metal goods which can moreover also use washing nature (degreasing nature) as a high metal-goods water-system cleaning agent.
[0009]
[Means for Solving the Problem] The cleaning agent constituent for metal goods of this invention which solves the above-mentioned technical problem is characterized by the bird clapper from remainder water including the amine soap of the vegetable fat acid containing either [at least] oleic acid or linolic acid, the non-ion system surfactant of a polyoxyethylene system, the water-soluble organic solvent of a glycol-ether system, a sequestering agent, and 2 base fatty-acid amine soap.
[0010]
[Function] The cleaning agent constituent for metal goods of this invention is diluted with predetermined concentration by water, and is used as a drainage system cleaning agent. And by operation of each component shown below, this drainage system cleaning agent has high waste-water-treatment nature (biological-treatment nature) and rust prevention nature, moreover fully demonstrates each property, such as adsorptivity, emulsifiability, solubility, permeability, and dispersibility, and has high washing nature.
[0011] First, it will become colloid and the amine soap of the vegetable fat acid containing either [at least] oleic acid or linolic acid will be distributed, if it dissolves the inside of water-soluble. Colloid acts on an oil (fats and oils) powerfully, emulsifies an oil and dissolves. Moreover, the part serves as an electrolyte and colloid forms the micell as the aggregate of a molecule or ion. The molecule in this micell adheres to the surroundings, such as fats and oils, and acts distribution, adsorption, suspension, etc. Therefore, the amine soap of the above-mentioned vegetable fat acid is contributed to improvement in a detergency (degreasing power).
[0012] Moreover, as compared with the synthetic fatty acid of a petroleum system, the vegetable fat acid which is a natural-fat acid has high biological-treatment nature, and oxidative degradation is easily carried out by the underwater microorganism. Therefore, the amine soap of the above-mentioned vegetable fat acid is contributed to improvement in waste-water-treatment nature (biological-treatment nature). Next, for the non-ion system surfactant of a polyoxyethylene system, as compared with other

anions and a cation system surfactant, micell generation concentration is low and critical micelle concentration is also a low. For this reason, even if the concentration of this non-ion system surfactant is low, the micell which acts distribution, adsorption, suspension, etc. as described above is generated by high concentration. Moreover, for this non-ion system surfactant, it compares with other anion system surfactants, and surface tension is a low very much. For this reason, properties, such as a wettability (wettability) and permeability, are also high. Therefore, the non-ion system surfactant of a polyoxyethylene system is contributed to improvement in a detergency (degreasing power).
[0013] The water-soluble organic solvent of a glycol-ether system is a solvent of a strong hydrophilic property, and since the bridge formation operation with fats and oils, soap, and water is high, its property of solubilization, emulsification, and permeability is high. Therefore, the water-soluble organic solvent of a glycol-ether system contributes to improvement in a detergency (degreasing power). A sequestering agent can soften hard water by combining with a metal ion in solution and forming the chelate complex of fusibility. Therefore, when the metal ion in solution combines with soap, it can prevent that a detergency declines and contributes to improvement in a detergency (degreasing power).
[0014] Since 2 base fatty-acid amine soap generates a thin film on the front face of a washing object or a washing station, it acts as a rustproof effect. For example, it is the raw material which the carboxylic acid of two bases reacts with a hexamethylenediamine, and generates polyamide resin (nylon 6, 6 grades) among saturated fatty acid, and a paint film performance and waterproof ability have the property of being good. 2 base fatty-acid amine soap presupposes that it is water-soluble as amine soap of a fatty acid that such a performance of the saturated fatty acid of two bases should be utilized. Therefore, if the solution of 2 base fatty-acid amine soap contacts the front face of a washing object or a washing station, a thin film is generated by this front face and a metallic corrosion can be prevented by this thin film.
[0015] Water is added in order to distribute each above-mentioned component uniformly and to make it mix. The cleaning agent which diluted the cleaning agent constituent of this invention with water can be effectively used, in case parts, a tool, etc. with the solid-state front face of a fixed configuration besides bits and pieces, such as an automobile and a machine, and electrical and electric equipment, an electron, are cleaned ultrasonically. Since especially this cleaning agent has a wettability and the high property of permeability, the suitable performance for ultrasonic cleaning of a bit and piece is demonstrated. and -- according to this cleaning agent -- a pollutant -- organic [, such as fats and oils, machine oil, a quenching oil, grease, and flux,] -- a metal powder, carbon, inorganic substance powder, etc. mixed in this besides the dirt of an oil content -- it becomes dirty, it comes out, and it is effectively removable even if it is
[0016] Moreover, when the cleaning agent concerning this invention is applied to ultrasonic cleaning, the vegetable-fat acid containing either [at least] oleic acid or linolic acid dissolves the inside of water-soluble, it becomes colloid, and a higher detergency can expect according to the synergism of that this carries out Brownian motion (chemical effect) and the cavitation effect (physical effect which air bubbles produce, and the pressure of thousands atmospheric pressure produces near it when disappearing) of a ultrasonic cleaner.
[0017]
[Example]
(Desirable embodiment) As for the blending ratio of coal of the cleaning agent constituent for metal goods of this invention, carrying out as follows is desirable.
(a) A of the vegetable fat acid containing either [at least] oleic acid or linolic acid MINSEKKEN : 5 - 20 weight section The ion [non-] system surfactant of (b) polyoxyethylene system: 5 - 15 weight section Water-soluble organic solvent of (c) glycol-ether system : 5 - 15 weight section (d) sequestering agent : 5 - 15 weight section (e) 2 base fatty-acid amine soap : 5 - 15 weight section (f) water : At the time of ****** Although especially the addition rate of (f) water to the above-mentioned component (a), (b), (c), (d), and (e) is not limited, it should just add the minimum water which these components distribute uniformly and can mix from a viewpoint which makes capacity of the whole cleaning agent constituent as small as possible.
[0018] (a) If there is less amine soap blending ratio of coal of the vegetable fat acid containing either [at

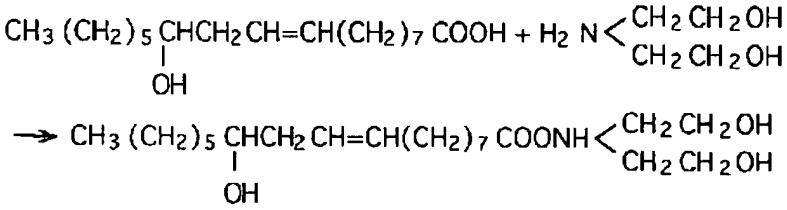
least] oleic acid or linolic acid than 5 weight sections, it will become the fall of detergencies (emulsification, adsorption, etc.), and when [than 20 weight sections] more, a problem will arise in the solubility at the time of use dilution by uneven mixture of a component, and the increase in viscosity.
(b) If there is less blending ratio of coal of the non-ion system surfactant of a polyoxyethylene system than 5 weight sections, it will become the fall of detergencies (a wettability, permeability, etc.), and if [than 15 weight sections] more, a load will become waste-water-treatment nature with this thing.
[0019] (c) If there is less blending ratio of coal of the water-soluble organic solvent of a glycol-ether system than 5 weight sections, it will become the solubility at the time of the use dilution by uneven mixture of amine soap and the increase in viscosity with a problem, and if [than 15 weight sections] more, a load will become waste-water-treatment nature with this thing.
(d) If there is less blending ratio of coal of a sequestering agent than 5 weight sections, the hardness component (a part for Mg and calcium) of a diluted solution will react with amine soap, and will become insoluble, it will become impossible for the performance of conventional amine soap to fully demonstrate, and if [than 15 weight sections] more, it will become an ion blockade and the chemical injection more than required as a builder, and will become the load of waste water treatment, the load of a price, etc.
[0020] (e) When there is less blending ratio of coal of 2 base fatty-acid amine soap than 5 weight sections, the temporary-rust-prevention force (with no 24-hour rusting) as a rusr-proofer can be maintained, if [than 15 weight sections] more, it will become superfluous quality and a load will become waste water treatment with this thing. Moreover, when diluting the cleaning agent constituent of this invention with water and using it as a cleaning agent, diluting with water is desirable so that the undiluted solution concentration when using a cleaning agent constituent as an undiluted solution may become 1 - 8wt%, and considering as 2 - 5wt% is more desirable. When this undiluted solution concentration is thinner than 1wt%, there is a rust prevention top problem, and even if it makes it deeper than 8wt(s)% on the other hand, a detergency (degreasing power) increases, does not divide and come out, and becomes disadvantageous in cost.
[0021] Furthermore, it is one desirable mode of the cleaning agent constituent for metal goods of this invention. (a) talloil-fatty-acid amine soap : 5 - 20 weight section (b) polyethylene-glycol PARAISO octyl phenyl ether : 5 - 15 weight section (c) dipropylene-glycol monomethyl ether : 5 - 15 weight section (d) ethylenediamine TETORAASE tic acid : 5 - 15 weight section (e) 2 base fatty-acid amine soap : 5 - 15 weight section (f) water : The cleaning agent constituent which consists of the remainder can be mentioned.
[0022] (a) As amine soap of a vegetable fat acid, although one amine soap of oleic acid and linolic acid may be used, it is desirable to use the amine soap of a vegetable fat acid including the both sides of oleic acid and linolic acid. When using the amine soap of the independent vegetable fat acid of oleic acid or linolic acid, it is necessary to extract and refine oleic acid or linolic acid from a vegetable fat acid with nature, and this is disadvantageous also in cost, and it is because the improvement of a washing property according to each property is expectable if the amine soap of the both sides of oleic acid and linolic acid is included. As amine soap of a vegetable fat acid including the both sides of such oleic acid and linolic acid, the above-mentioned talloil-fatty-acid amine soap can be mentioned. Talloil fatty acid is what separated the fatty acid out of the tall oil as a product acquired in case pulp is manufactured by the kraft process from pine wood, and the component is oleic acid:40-50%, linolic acid:40-45%, and saturation acid:10%.
[0023] In addition, the amine soap of the oleic acid which constitutes the above-mentioned talloil-fatty-acid amine soap is obtained by for example, following-ized 1 formula, and the amine soap of the linolic acid which constitutes talloil-fatty-acid amine soap is obtained by for example, following-ized 2 formulas.
[0024]
[Formula 1]

オレイン酸　　ジエタノールアミン



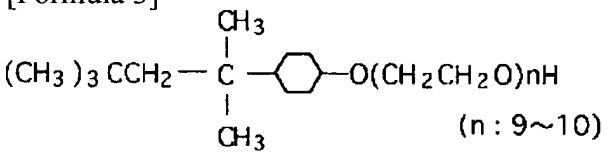
$$CH_3(CH_2)_7CH{=}CH(CH_2)_7COOH + H_2N{<}\begin{matrix}CH_2CH_2OH\\CH_2CH_2OH\end{matrix} \longrightarrow CH_3(CH_2)_7{=}CH(CH_2)_7COONH{<}\begin{matrix}CH_2CH_2OH\\CH_2CH_2OH\end{matrix}$$

[0025]
[Formula 2]
リノール酸　　ジエタノールアミン



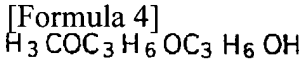
$$CH_3(CH_2)_5CH(OH)CH_2CH{=}CH(CH_2)_7COOH + H_2N{<}\begin{matrix}CH_2CH_2OH\\CH_2CH_2OH\end{matrix} \longrightarrow CH_3(CH_2)_5CH(OH)CH_2CH{=}CH(CH_2)_7COONH{<}\begin{matrix}CH_2CH_2OH\\CH_2CH_2OH\end{matrix}$$

[0026] (b) As a non-ion system surfactant of a polyoxyethylene system, an p-n octyl phenol, an o-n octyl phenol, etc. can be mentioned other than the above-mentioned polyethylene-glycol PARAISO octyl phenyl ether. In addition, a polyethylene-glycol PARAISO octyl phenyl ether is shown by following-ized 3 formulas.
[0027]
[Formula 3]



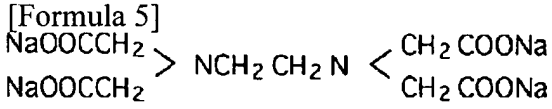
$$(CH_3)_3CCH_2-C(CH_3)_2-C_6H_4-O(CH_2CH_2O)nH \quad (n:9\sim10)$$

[0028] (c) As a water-soluble organic solvent of a glycol-ether system, a propylene glycol monomethyl ether, a propylene-glycol wood ether, etc. can be mentioned other than the above-mentioned dipropylene-glycol monomethyl ether. In addition, the dipropylene-glycol monomethyl ether is shown by following-ized 4 formulas.
[0029]
[Formula 4]



$$H_3COC_3H_6OC_3H_6OH$$

[0030] (d) As a sequestering agent, the above-mentioned ethylenediamine TETORAASE tic acid can be used. In addition, ethylenediamine TETORAASE tic acid is shown by following-ized 5 formulas.
[0031]
[Formula 5]



$$\begin{matrix}NaOOCCH_2\\NaOOCCH_2\end{matrix}{>}NCH_2CH_2N{<}\begin{matrix}CH_2COONa\\CH_2COONa\end{matrix}$$

[0032] (Example 1) The following component was mixed and the cleaning agent constituent of this example 1 was prepared.
(a) Talloil-fatty-acid amine soap : 13wt% (b) polyethylene-glycol PARAISO octyl phenyl ether : 7wt% (c) dipropylene-glycol monomethyl ether : 6wt% (d) ethylenediamine TETORAASE tic acid : 6wt% (e) 2 base fatty-acid amine soap : 9wt% (f) water : Let the cleaning agent constituent of ****** be an undiluted solution. It diluted with ion exchange water so that undiluted solution concentration might become 2wt(s)%, and the drainage system cleaning agent concerning an example 1 was obtained.
[0033] (Example 1 of comparison) 1.1.1. trichloroethane as a chlorine-based cleaning agent was prepared as a cleaning agent of the example 1 of comparison.
(Example 2 of comparison) The following component was mixed and the cleaning agent constituent of

the example 2 of comparison was prepared.
[0034]
Fatty-acid amine soap (caprylic acid) : 10 - 20wt% Surfactant (cation system amine oxide type) : 20 - 30wt% Water : By having used the cleaning agent constituent of ****** as the undiluted solution, it diluted with ion exchange water so that undiluted solution concentration might become 2wt(s)%, and the drainage system cleaning agent as a chlorine-based alternative cleaning agent concerning the example 2 of comparison was obtained.
[0035] (Example 3 of comparison) The following component was mixed and the cleaning agent constituent of the example 3 of comparison was prepared.
Fatty-acid amine soap (caprylic acid) : 10 - 20wt% 2 base fatty-acid amine soap : 10 - 20wt% Surfactant (Nonion system special ether type) : 1 - 5wt% (Nonion system polyethylene type) : 1 - 5wt% (cation system) : 1 - 5wt% Water : Let the cleaning agent constituent of ****** be an undiluted solution. It diluted with ion exchange water so that undiluted solution concentration might become 2wt(s)%, and the drainage system cleaning agent as a chlorine-based alternative cleaning agent concerning the example 3 of comparison was obtained.
[0036] (Washing nature evaluation) Using the cleaning agent of the above-mentioned example 1 and the examples 1 and 3 of comparison, as follows, two sorts of parts P (80mmx150mm) and the bit and piece Q (12mmx5mm washer) were cleaned ultrasonically, respectively, and washing nature was evaluated. The machine oil as pollution fats and oils was applied after part weighing capacity (let the weighing capacity result at this time be weighing capacity A), and part weighing capacity was carried out again (let the weighing capacity result at this time be weighing capacity B). It flooded with the above-mentioned drainage system cleaning agent which heated the parts with which this machine oil was applied at 60 degrees C, and all washing time was cleaned ultrasonically as 3 minutes. This performed each ultrasonic wave (28kHz, 45kHz, and 100kHz) by adding to liquid by a unit of 3 times during 2O second, respectively. After this ultrasonic cleaning, after carrying out rinse washing (parts are moved up and down 3 times in ion exchange water) of the parts picked out from the cleaning agent, it dried for 15 minutes by 105-degree C hot blast. And after cooling parts in ordinary temperature, part weighing capacity was carried out (the weighing capacity result at this time is set to C).
[0037] According to the following formula, it asked for the rate of washing (fats-and-oils elimination factor) from the above-mentioned weighing capacity results A, B, and C. The result is shown in Table 1.

[Rate formula of washing]
Rate (%) of washing ={1-[(weighing capacity C-weighing capacity A)/(weighing capacity B-weighing capacity A)]} x100. [0038]
[Table 1]

	洗浄率（%）	
	部品P	小物部品Q
実施例1	99．1	98．9
比較例1	99．6	99．1
比較例3	98．4	79．7

The result of Table 1 shows that the cleaning agent of this example 1 is equivalent to the cleaning agent which whose detergency (fats-and-oils elimination factor) is improving as compared with the cleaning

agent concerning the example 3 of comparison as a conventional drainage system cleaning agent, and requires it for the example 1 of comparison as a chlorine-based cleaning agent.
[0039] Thus, since a detergency equivalent to the conventional chlorine-based cleaning agent is demonstrated, it does not need to become possible to make the conventional chlorine-based cleaning agent substitute, and, as for the cleaning agent of this example 1, change etc. does not need to carry out the ultrasonic-cleaning facility for chlorine-based cleaning agents etc. in this case. Moreover, according to the cleaning agent of this example 1, as compared with the case where a chlorine-based cleaning agent is used, the good work environment which toxicity can secure the safety to a human body highly very low, and does not have evaporation, ****, etc. is securable.
[0040] (Waste-water-treatment nature evaluation) About the cleaning agent of the above-mentioned example 1 and the examples 2 and 3 of comparison, the coagulation treatment and the activated sludge treatment were performed as follows, and waste-water-treatment nature was evaluated. In order to carry out coagulation-with-chemicals processing, what diluted a sulfuric acid (acidolysis), caustic soda (pH regulator), slaked lime (neutralization), the sulfuric-acid band (flocculant), and the polymer coagulant (coagulant aid) with the rate shown below, respectively with 1l. pure water was prepared as an addition chemical.
[0041] A sulfuric acid : 100 g/l caustic soda : 100 g/l slaked lime : A 100 g/l sulfuric-acid band : A 100 g/l polymer coagulant : Carry out thousands of dozens of ppm - ppm (flocculant is 2000-3000 ppm and polymer coagulant is 50-100 ppm) addition of 1 g/l each chemical to each above-mentioned cleaning agent, generate the component in liquid as flocks and carry out component removal. The coagulation treatment to which COD (chemical oxygen demand) and BOD (organism-oxygen demand) in liquid are reduced was performed. The result of the water quality measurement after processing is shown in Table 2.
[0042] Then, by diluting the cleaning agent after the above-mentioned coagulation treatment with pure water, it adjusted so that COD might serve as 50 mg/L, and this was put into the about [20L]
And activated sludge was thrown in at a rate of 2000 mL/L in this glassware. Next, the activated sludge treatment of the aeration was performed and carried out with the air (200**20 mL/min) of optimum dose for 24 hours, controlling the amount of air by the air flowmeter. The result of the water quality measurement after processing is collectively shown in Table 2.
[0043]
[Table 2]

	凝集処理				除去率 (%)		活性汚泥処理				除去率 (%)		総除去率 (%)	
	COD		BOD				COD		BOD					
	処理前	処理後	処理前	処理後	COD	BOD	処理前	処理後	処理前	処理後	COD	BOD	COD	BOD
実施例1	1500	1150	1000	760	23.3	24.0	500	380	330	151	24.0	54.2	41.7	65.2
比較例2	3600	3200	7200	5050	11.1	29.9	500	393	793	540	21.4	31.9	30.1	52.2
比較例3	2000	1500	1200	880	25.0	26.7	500	195	366	98	61.0	73.2	70.8	80.4

[0044] It turns out that the cleaning agent of this example 1 has the high elimination factor of BOD and COD as compared with the cleaning agent of the example 2 of comparison as a conventional drainage

system cleaning agent, and the example 3 of comparison, and biological-treatment nature is higher than the result of Table 2. Therefore, according to the cleaning agent concerning this example 1, when carrying out the activated sludge treatment of the waste fluid after washing, compared with the conventional drainage system cleaning agent, the burden to a waste-water-treatment place can be mitigated. Moreover, even if compared with the waste fluid of a chlorine-based cleaning agent, safety is high (toxicity and detrimental nature are), and the waste fluid of the cleaning agent concerning this example 1 which is a drainage system cleaning agent is easy handling. Moreover, although a chlorine system needs processing consignment for a waste treatment business company, since this cleaning agent can be disassembled by biological treatment, processability becomes easy and reduction of the number of waste fluid down stream processing or cost can be aimed at.

[0045] (Rust prevention nature evaluation 1) Each 20 sample solutions (what diluted each sample with various concentration by ion exchange water) shown in Table 3 were dropped at the test piece of the steel plate ground and washed as 3-4mm waterdrop by the syringe, it was left in ordinary temperature, and the generating situation of the rust of the waterdrop portion of 24 hours after was observed. The result is shown in Table 3.

[0046]

[Table 3]

濃度（ｗｔ％）	二塩基脂肪酸アミンセッケン	オレイン酸アミンセッケン	トール油脂肪酸アミンセッケン
３．０	発錆なし	発錆なし	発錆なし
１．５	発錆なし	発錆なし	発錆なし
０．７５	発錆なし	発錆なし	発錆なし
０．３７５	発錆なし	発錆なし	発錆なし
０．１８８	発錆なし	発錆	発錆なし
０．０９４	発錆なし	発錆	発錆
０．０４７	発錆	発錆	発錆

From the result of Table 3, 2 base fatty-acid amine soap demonstrates a rustproof effect also by very thin concentration, and is understood that the rustproof force is large compared with oleic acid amine soap or talloil-fatty-acid amine soap.

[0047] (Rust prevention nature evaluation 2) 25g of cutting powder of the washed cast iron (FC-20) was put into the petri dish with a cover, and each sample solution (what diluted each component with 1% of concentration by ion exchange water) shown in Table 4 in it was paid until cutting powder was immersed completely. It was begun to pass the sample solution, the liquid end was carried out to the grade in which a little sample solution remains, and the rusting state of cutting powder was observed from the undersurface on the petri dish to ********** in ordinary temperature. The result is shown in Table 4. in addition, the inside of Table 4 and O -- the generating nothing of rust, and O -- the rust of 1-2 points -- generating and ** -- the rust of about ten points -- generating and x -- several 10 of the cutting powder -- it is shown that rust was generated in point -1/3, and rust generated generating and xx or more [of the cutting powder] in 1/3

[0048]
[Table 4]

経過時間（h）	二塩基脂肪酸アミンセッケン	オレイン酸アミンセッケン	トール油脂肪酸アミンセッケン
1	◎	◎	×
2	◎	◎	××
3	◎	◎	××
6	◎	○	××
24	◎	○	××

From the result of Table 4, 2 base fatty-acid amine soap is understood that the rustproof force is large compared with oleic acid amine soap or talloil-fatty-acid amine soap.
[0049]
[Effect of the Invention] As explained in full detail above, though it is a drainage system cleaning agent, according to the cleaning agent constituent for metal goods of this invention, washing nature (degreasing nature) and rust prevention nature become high possible [offering a drainage system cleaning agent also with high waste-water-treatment nature (biological-treatment nature)] by composition indicated by the claim.
[0050] Therefore, the cleaning agent concerning this invention can be suitably used as an industrial use cleaning agent which can substitute the chlorofluocarbon system and chlorine-based cleaning agent which pose a big problem by environmental pollution etc., and can wash metal parts.

[Translation done.]

* NOTICES *

1. This document has been translated by computer.So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] The cleaning agent constituent for metal goods characterized by including the amine soap of the vegetable fat acid containing either [at least] oleic acid or linolic acid, the non-ion system surfactant of a polyoxyethylene system, the water-soluble organic solvent of a glycol-ether system, a sequestering agent, 2 base fatty-acid amine soap, and water.

[Translation done.]